UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/675,530	09/29/2000	Michael F. Angelo	1662-28400 (P99-2550)	1588

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EXAMINER
CARTER, AARON W

ART UNIT	PAPER NUMBER
2625	

DATE MAILED: 02/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	**Applicant(s)**
Office Action Summary	09/675,530	ANGELO ET AL.
	Examiner	**Art Unit**
	Aaron W Carter	2625

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 December 2003*.

2a)☒ This action is **FINAL.**   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-37* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-37* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *29 September 2000* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

1.   This action is responsive to papers filed on December 29, 2003.

Response to Amendment

2.   In response to applicant's amendment received on December 29, 2003, all requested changes to the specification and claims have been entered. Claims 28-37 have been added.

Response to Arguments

3.   Applicant's arguments, see Amendment A, paper #6, pages 8-9, filed December 29, 2003, with respect to the rejection(s)of claim(s) 1, 4, 6, 8-12 and 25 under 35 USC 102(e) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn.

Applicant's arguments filed see Amendment A, paper #6, pages 9-10, filed December 29, 2003, with respect to 35 USC 103(a) rejections have been fully considered but they are not persuasive.

Applicants argue that neither Bolle nor Fiete teaches or suggests the limitation wherein an interface is configured to determine if the transmitted images include non-stationary bands.

The examiner disagrees, Fiete discloses determining and correcting the presence of non-stationary bands, see column 2, lines 32-42 and column 3, line 64 – column 4, line 7. Wherein Fiete teaches that streaks or bands occur because of different response curves of the adjacent detectors in a digital sensor. He goes on to say that the difference between adjacent pixels is dependent upon the detector response as well as the difference between the illumination radiance

incident on the adjacent pixels. This indicating that difference between pixels, which is

ultimately creating the bands, is not always located in the same location in every image since

illumination radiance incident on the adjacent pixels will inherently change, or in other words the

bands are not stationary. Please refer to further rejections made below.

Claim Rejections - 35 USC § 102

4.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United
> States before the invention thereof by the applicant for patent, or on an international application by another who
> has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention
> thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999

(AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002

do not apply when the reference is a U.S. patent resulting directly or indirectly from an

international application filed before November 29, 2000. Therefore, the prior art date of the

reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA

35 U.S.C. 102(e)).

Claims 28-32 are rejected under 35 U.S.C. 102(e) as being anticipated by US Patent

6,292,576 to Brownlee.

As to claim 28, Brownlee discloses a system comprising:

A camera (column 2, lines 38-39, wherein imaging device corresponds camera); and

A digital signal processor (DSP) coupled to the camera, wherein the DSP is configurable

to capture a plurality of image frames from the camera and detect if a series of the plurality of

image frames are duplicate image frames (Fig. 5, wherein the imaging device captures two

images of the finger and if difference is less than threshold this indicates that little or no variation

between the images, meaning that they are duplicates).

As to claim 29, Brownlee discloses the system of claim 28, wherein the plurality of

image frames comprises fingerprint images (Fig. 5, elements 503 and 507).

As to claim 30, Brownlee discloses the system of claim 28, wherein the duplicate image

frames exhibit less than a threshold amount of variation across the series of the plurality of image

frames (Fig. 5, wherein the imaging device captures two images of the finger and if difference is

less than threshold this indicates that little or no variation between the images, meaning that they

are duplicates).

As to claim 31, Brownlee discloses the system of claim 28, wherein the DSP performs an

action upon detecting duplicate image frames (Fig. 5, elements 511, 517 and 519).

As to claim 32, Brownlee discloses the system of claim 31, wherein the action comprises

at least one action selected from the group consisting of aborting an image frame acquisition

process and reporting a failure (Fig. 5, elements 511, 517 and 519).

Claim Rejections - 35 USC § 103

5.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

6.   Claims 1-4, 6-8, 13-20 and 25-27 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Bolle (already of record) in view of USPN 5,881,182 to Fiete et al. ("Fiete").

As to claim 1, Bolle discloses a computer system comprising:

A biometric device configured to transmit images (Fig. 7, element 780, 730 and 735);

An interface coupled to the device to receive the transmitted images (Fig. 7, element

710), wherein the interface is configured to determine if the transmitted images include poor

quality (column 3, lines 15-17).

While Bolle determines whether or not a transmitted image is poor in quality, he neglects

to explicitly disclose that the poor quality is the result of bands. However, Fiete discloses a

process for detecting non-stationary bands in an image (column 2, lines 35-41 and column 3, line

64 – column 4, line 7). Therefore it would have been obvious to one of ordinary skill in the art at

the time the invention was made to determine if an image includes bands, as taught by Fiete,

which reduce the aesthetic quality of the image and severely degrades the performance of a

pattern recognition and feature extraction algorithms (column 1, lines 60-64) such as those performed biometric device disclosed by Bolle.

As to claim 2, the combination of Bolle and Fiete discloses the computer system of claim 1, Bolle further discloses wherein the interface is configured to report failure (column 3, lines 15-17) if the interface determines that the transmitted images include non-stationary bands.

As to claim 3, the combination of Bolle and Fiete disclose the computer system of claim 1, Fiete further discloses wherein the bands are attributable to illumination changes (column 1, lines 47-51).

As to claim 4, Bolle discloses the computer system of claim 1, wherein the bands are attributable to electrical changes (column 3, line 64 – column 4, line 7).

As to claim 6, Bolle discloses the computer system of claim 1, wherein the interface is configured to process the images to determine minutia information (column 7, lines 42-55).

As to claim 7, the combination of Bolle and Fiete discloses the computer system of claim 6, Bolle discloses wherein the interface is configured to convert the minutia information into a template only if the interface does not determine that the transmitted images include bands (Bolle, column 2, lines 56-60, column 3, lines 15-17).

As to claim 8, Ackland discloses the computer system of claim 1, wherein the biometric device is a fingerprint scanner configured to transmit images of fingerprints (column 5, lines 17-19).

As to claim 13, the combination of Bolle and Fiete discloses the computer system of claim 1, while Bolle discloses wherein the interface connects to an expansion slot (Fig. 7, element 780), and wherein the computer system further comprises:

A system memory configured to store software (column 4, lines 65-67).

A processor coupled to the system memory and configured to execute the software (column 4, lines 58-59), wherein the processor is further coupled to the interface (Fig. 7), wherein the software configures the processor to initiate operation of the interface and biometric device (column 5, lines 2-11).

As to claim 14, the combination of Bolle and Fiete disclose the computer system of claim 13, Bolle further discloses wherein the processor is configured to receive a template from the interface, and wherein the processor is configured to compare the template to a stored template (Fig. 7 and column 1, lines 49-53).

As to claim 15, the combination of Bolle and Fiete discloses the computer system of claim 13, Bolle further discloses wherein the computer system further comprises:

A network interface coupled to a network login server, wherein the network login server is configured to receive a template from the interface, and wherein the network login server is

configured to compare the template to a stored template (Fig. 7, element 786 and column 5, lines 23-28).

As to claims 16, the combination of Bolle and Fiete disclose a fingerprint verification method that comprises:

Capturing a plurality of fingerprint images (Bolle, Fig. 7, element 780); and

Determining if the fingerprint images include non-stationary bands (Fiete, column 2, lines 35-41), and if so, aborting creation of a fingerprint template (Bolle, column 3, lines 15-17).

As to claim 17, please refer to rejection made for claim 3 above.

As to claim 18, the combination of Bolle and Fiete disclose the method of claim 16, Bolle further discloses wherein the determining is one of plurality of security tests, and wherein the method further comprises:

Creating a fingerprint template if the image passes the plurality of security tests (Fig. 8B, elements 8804, 8807, 8809 and 8812).

As to claim 19, the combination of Bolle and Fiete disclose the method of claim 18, Bolle further discloses wherein the creating includes:

Extracting minutia information from the fingerprint image (column 1, lines 45-47); and

Converting the minutia information into the fingerprint template (column 1, lines 50-53).

As to claim 20, the combination of Bolle and Fiete disclose the method of claim 19, Bolle

further discloses wherein the plurality of security tests includes determining if minutia

information from one fingerprint image matches minutia information from another fingerprint

image (column 1, lines 50-53).

As to claims 25 and 26, please refer to rejection made for claims 16 and 17 above.

As to claim 27, please refer to the rejection of claim 2 above.

7.   Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bolle and Fiete as

applied to claim 1 above, and further in view of USPN 4,600,675 to Iwasa et al ("Iwasa").

As to claim 5, the combination of Bolle and Fiete disclose the computer system of claim

1, but neglect to explicitly disclose the bands are attributable to induction across the biometric

device. However, Iwasa teaches us that it is known in the art that a magnetic field can cause

bands or streaks in an image. Therefore it would have been obvious to one of ordinary skill in

the art at the time the invention was made to determine if an image contains bands attributable to

induction across the biometric device, since it is known in the art that streaks can be caused in

this nature and reduce the quality of the image (column 3, lines 21-22).

8.   Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bolle and Fiete as

applied to claim 16 above, and further in view of USPN 6,292,576 to Brownlee et al.

("Brownlee").

As to claim 21, the combination of Bolle and Fiete disclose the method of claim 16, but neglect to disclose illuminating a window from a scanning side and scanning light reflected back through the window in raster fashion. However, Brownlee discloses disclose illuminating a window from a scanning side and scanning light reflected back through the window in raster fashion (Fig. 9 and column 7, lines 20-25). Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use the illumination and scanning method as taught by Brownlee, which aids in determining whether or not the fingerprint came for a living human being (column 1, lines 47-50).

9.   Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bolle and Fiete as applied to claim 18 above, and further in view of Brownlee (already of record).

As to claim 24, the combination of Bolle and Fiete disclose the method of claim 18, wherein the plurality of tests includes extracting minutia information from a plurality of fingerprint images (Bolle, column 1, lines 50-53), but neglects to explicitly disclose that comparing the minutia information of the plurality of images to determine if at least a minimum amount of variation exists, and if not, aborting the creation of the fingerprint match template. However, Brownlee discloses comparing the minutia information of the plurality of images to determine if at least a minimum amount of variation exists, and if not, aborting the creation of the fingerprint match template (Fig. 5). Therefore it would have been to one of ordinary skill in the art at the time of the invention to determine if at least a minimum amount of variation exists as taught by Brownlee, this providing a method of determining whether the fingerprint is from a living human being (Fig. 5, element 513).

10.   Claims 9-12 and 22-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Bolle and Fiete as applied to claims 1 and 16 above, and further in view of US Patent 5,987,156

to Ackland et al. ("Ackland").

As to claims 9 and 22, the combination of Bolle and Fiete discloses the system/method

of claims 1 and 16, but neglect to explicitly disclose the limitation wherein the interface

determines if one or more of the transmitted images include at least one straight line having at

least a predetermined width across the image. However, Ackland discloses the determination of

whether one or more of the transmitted images include at least one straight line having at least a

predetermined width across the image (column 3, lines 40-43 wherein the sensing elements form

a column which corresponds to a straight line and they each have the same predetermined width

and in column 4, lines 49-55, it is determined if the straight lines are variant from the other

straight lines in the image, see also figure 3). Therefore it would have been obvious to one of

ordinary skill in the art at the time of the invention to combine the process disclosed by Bolle and

Fiete with determining whether straight lines with a predetermined width exists in a transmitted

image. This providing the invention with the ability to effectively reduce column noise that

appears as bands in an image (column 1, lines 45-60 and Fig. 3).

As to claim 10, the combination of Bolle and Fiete discloses the computer system of

claim 1, Ackland further discloses wherein the interface processes a plurality of rows to

determine a corresponding plurality of grayscale value histograms (Fig. 5).

As to claim 11, the combination of Bolle and Fiete discloses the computer system of claim 10, Ackland further discloses wherein the interface processes the plurality of grayscale value histograms to determine a corresponding plurality of modes for the grayscale value histograms (Fig. 5, wherein modes corresponds to Vj and Rj).

As to claim 12, the combination of Bolle and Fiete discloses the computer system of claim 11, Ackland further discloses wherein the interface determines if the plurality of modes indicate the existence of bands in the images by determining if the modes exhibit variation greater than a predetermined amount (column 4, lines 32-36).

As to claim 23, please refer to rejections made for claims 10-12 above.

11.   Claims 33-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brownlee as applied to claims 28-32 above, and further in view of Ackland (already of record).

As to claim 33, Brownlee discloses the system of claim 28, but neglects to explicitly disclose wherein the DSP is configurable to detect banded regions in an image frame. However, Ackland discloses a DSP that is configurable to detect banded regions in an image frame (column 4, lines 49-55, wherein derivation in pixel intensities, which causes bands as seen in fig 3, are determined). Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the system disclosed by Brownlee with the band detection

system disclosed by Ackland. This provides the invention with the locating and correcting band

regions in a fingerprint image, eliminating the confusion in extracting relevant features for

verification purposes (column 1, lines 38-42).

As to claim 34, the combination of Brownlee and Ackland disclose the system of claim

33, Ackland further discloses wherein the DSP detects banded regions in image frame by

detecting if more than a predetermined amount of grayscale variation exists (column 4, lines 32-

36 and Fig. 5).

As to claim 35, the combination of Brownlee and Ackland disclose the system of claim

33, Ackland further discloses wherein the DSP detects banded regions in an image frame by

detecting lines across the image frame, wherein the lines have at least a predetermined width

(column 3, lines 40-43 wherein the sensing elements form a column which corresponds to a

straight line and they each have the same predetermined width and in column 4, lines 49-55, it is

determined if the straight lines are variant from the other straight lines in the image, see also

figure 3).

As to claim 36, the combination of Brownlee and Ackland disclose the system of claim

33, Ackland further discloses wherein the DSP performs an action if a banded region is detected

(column 1, lines 52-60, the corrective gain and offset are determined).

As to claim 37, the combination of Brownlee and Ackland disclose the system of claim

36, Ackland further discloses wherein the action comprises at least one action selected from the

group consisting of aborting an image frame acquisition process and reporting a failure (column

4, lines 49-55, wherein derivation in pixel intensities, which causes bands as seen in fig 3, are

determined, wherein it is implied that the determination of the bands sends a failure report

causing corrective measures)

Conclusion

12.   Applicant's amendment necessitated the new ground(s) of rejection presented in this

Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the date of this

final action.

BHAVESH M. MEHTA
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600

13.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Aaron W Carter whose telephone number is (703) 306-4060. The

examiner can normally be reached on 7am - 3:30 am (Mon. - Fri.).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Bhavesh Mehta can be reached on (703) 308-5246. The fax phone number for the

organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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